

REMARKS

This is in full and timely response to the Office Action mailed on June 3, 2008.

Claims 1-3 and 5-9 are currently pending in this application, with claims 1 and 7 being independent. *No new matter has been added.*

Reexamination in light of the following remarks is respectfully requested.

Claim rejections

Page 2 of the Office Action indicates a rejection of claims 1, 4-7, and 10-13 under 35 USC 102 as being allegedly being anticipated by JP 2003-083682 (JP'682).

Page 2 of the Office Action indicates a rejection of claims 1, 4-7, and 10-13 under 35 USC 102 as being allegedly being anticipated by JP 2004-074183 (JP'183).

Page 3 of the Office Action indicates a rejection of claims 2, 3, 8, and 9 under 35 USC 103 as being allegedly being unpatentable over either JP'682 or JP'183 in view of International Application Publication No. WO 92/20479 (WO'279).

These rejections are traversed at least for the following reasons.

Claims 1, 4-6 - Claims 4 and 10-13 are cancelled. Specifically, claim 1 is amended by incorporating claims 4 and 11-13 thereinto. Claims 2 and 3 are amended so as to depend on new claim 1.

Amended claim 1 is drawn to a container capable of being hermetically closed and storing a molten metal and supplying the molten metal to an outside using a pressure difference, comprising:

a frame body having an opening at an upper portion thereof;

a heat insulating wall laid onto an inner wall of the frame body;

a refractory storing bath, detachably inserted to an inner side of the heat insulating wall from the opening of the frame body to be integrally provided with the frame body;

a refractory and insulating member in a solid form containing a binder having a fusing point higher than that of the molten metal, inserted between the heat insulating wall and the refractory storing bath;

a lid that covers the opening of the frame body;

an introductory portion that introduces a gas for applying pressure into the storing bath covered with the lid; and

a supplying portion that supplies the molten metal stored inside the storing bath to an outside,

wherein the storing bath is formed so that a protruding portion extending to a vertical direction is formed on an inner side of the container and the flow path for the molten metal is provided inside the protruding portion, the flow path being made of ceramics,

wherein the storing bath is comprised of a seamless rigid body of ceramics having at least two engaging members fixed to an upper surface, outer surface or an inner surface thereof enabling a connection with an outside, and

wherein at least a part of the flow path is surrounded by a pipe made of ceramics.

Claims 7 and 10-13 - Claim 7 is amended by incorporating claim 10 therein. Claims 8 and 9 are amended so as to depend on new claim 7. Claim 11 is amended by incorporating claims 12 and 13 therein.

Amended claim 7 is drawn to a method of producing a container capable of being hermetically closed and storing a molten metal and supplying the molten metal to an outside using a pressure difference, comprising:

laying a heat insulating wall on an inner wall of the frame body having an opening at an upper portion thereof;

detachably inserting a refractory storing bath from the opening of the frame body to an inner side of the heat insulating wall;

inserting a refractory and insulating member in a solid form containing a binder having a fusing point higher than that of the molten metal between the heat insulating wall and the refractory storing bath and causing the refractory and insulating member to melt and solidify; and

covering the opening of the frame body with a lid.

With regard to claim 1, the present invention comprises “a refractory and insulating member in a solid form containing a binder having a fusing point higher than that of the molten metal, inserted between the heat insulating wall and the refractory storing bath” as recited therein.

With regard to claim 7, the present invention comprises “inserting a refractory and insulating member in a solid form containing a binder having a fusing point higher than that of the molten metal between the heat insulating wall and the refractory storing bath and causing the refractory and insulating member to melt and solidify”.

According to the present invention, the refractory and insulating member is in a solid form. Therefore, "the insulating member of either a granule form or a powder form eases the mechanical impacts inflicted to the refractory storing bath, thus the cracking can be prevented from occurring. In addition, use of this member facilitates replacement operation of the refractory storing bath. Therefore, relining can be performed easily and efficiently" (see paragraph 0010). Further, "using the refractory insulating member in a solid form prevents sliding in a position of the storing bath when transporting, and the like, the container. In addition, since nothing in fluid form is used when assembling the container, drying step is not necessary to be included" (see paragraph 0011), which are advantageous.

Further, according to the present invention, the refractory and insulating member contains a binder having a fusing point higher than that of the molten metal. Therefore, "the layer of the refractory and heat-insulating member 10 can be solidified caused by the heat obtained when using the container 1 (heat from the molten aluminum or heat of gas burner at a time of pre-heating) by mixing a binder in the refractory and heat-insulating member 10" (see paragraph 0048) .

In view of the above, according to the present invention, since, in the case where the container is heated, for example, at the time of pre-heating, the refractory and insulating member is solidified, it is not necessary to dry the refractory and insulating member before the use of the container. Thus, the manufacture of the container is made simple and the cost thereof is reduced.

With further regard to claim 1, the present invention comprises the feature "wherein the storing bath is formed so that a protruding portion extending to a vertical direction is formed on an inner side of the container and the flow path for the molten metal is provided inside the protruding portion, the flow path being made of ceramics, wherein the storing bath is comprised of a seamless rigid body of ceramics having at least two engaging members fixed to an upper surface, outer surface or an inner surface thereof enabling a connection with an outside, and wherein at least a part of the flow path is surrounded by a pipe made of ceramics".

According to the present invention, a protruding portion extending to a vertical direction is formed on an inner side of the container. With this structure, compared to the container of JP'183 and JP'682, the distance between the storing bath inner surface and the flow path is made small. So the weight of the storing bath of the present invention is made smaller than the storing bath of JP'183 and JP'682. So replacement operation can be executed more easily than that of JP'183.

Further, according to the present invention, the flow path is made of ceramics, and the storing bath is comprised of a seamless rigid body of ceramics. Therefore, "since the flow path is surrounded with a member that restricts the flow of a gas such as a metallic pipe or a ceramics pipe, a gas for applying pressure does not leak to the flow path. Accordingly, the molten metal can be stably supplied. Furthermore, the ceramics layer is effective for the thermal insulation of the flow path since the ceramics layer has high thermal conductivity.... In the present invention, since the ceramic pipe is buried in the storing bath, the outside of the pipe is not directly exposed to a high temperature during preheating of the container, therefore, the lifetime thereof is very long. Furthermore, even when the pipe cracks caused by a vibration at a time of transportation, the supply of the molten metal can be continued as far as the flow path is maintained. Accordingly, a situation where the molten metal becomes suddenly incapable of being supplied at the user side and the container has to be carried back can be avoided" (see paragraph 0025). In view of the above, since the flow path is made of ceramics, and the storing bath is comprised of a seamless rigid body of ceramics, there hardly generates cracks between the flow path and the storing bath.

Withdrawal of this rejection and allowance of the claims is respectfully requested.

Official Notice

There is no concession as to the veracity of Official Notice, if taken in any Office Action.

An affidavit or document should be provided in support of any Official Notice taken. 37 CFR 1.104(d)(2), MPEP § 2144.03. See also, *Ex parte Natale*, 11 USPQ2d 1222, 1227-1228 (Bd. Pat. App. & Int. 1989)(failure to provide any objective evidence to support the challenged use of Official Notice constitutes clear and reversible error).

Extensions of time

Please treat any concurrent or future reply, requiring a petition for an extension of time under 37 C.F.R. §1.136, as incorporating a petition for extension of time for the appropriate length of time.

Fees

The Commissioner is hereby authorized to charge all required fees, fees under 37 C.F.R. §1.17, or all required extension of time fees. If any fee is required or any overpayment made, the Commissioner is hereby authorized to charge the fee or credit the overpayment to Deposit Account # 18-0013.

Conclusion

This response is believed to be a complete response to the Office Action.

Applicants reserve the right to set forth further arguments supporting the patentability of their claims, including the separate patentability of the dependent claims not explicitly addressed herein, in future papers.


For the foregoing reasons, all the claims now pending in the present application are allowable, and the present application is in condition for allowance.

Accordingly, favorable reexamination and reconsideration of the application in light of the remarks is courteously solicited.

If the Examiner has any comments or suggestions that could place this application in even better form, the Examiner is requested to telephone Brian K. Dutton, Reg. No. 47,255, at 202-955-8753.

Dated: September 3, 2008

Respectfully submitted,

By 
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